

### Abstract of the Disclosure

A method of the present invention includes exposing a structure to first electromagnetic radiation including at least one wavelength absorbed by a predetermined substance that is to be detected. Such substance can be water, a water-soluble substance, or fungi, the presence of which can be a significant problem in a structure such as a house or building. The method includes sensing second electromagnetic radiation from the structure, the second radiation based on the first radiation. The method also includes determining whether the substance is present in the structure, based on the sensed second radiation. If the substance to be detected is water and the determining step reveals a water-suspect area in the structure, the method can include testing the water-suspect area of the structure to determine whether water is present therein. If water is confirmed by the determination to be present in the structure, the method can include a step of determining the source of the water. Proper identification of the source of a water problem permits appropriate measures to be taken to correct the water problem. The invention also includes similar methods for the detection of a water-soluble substance in a structure, such as carbonate, phosphate, sulfate, chloride or other minerals indicative that ground water is the source of a water problem. The invention also includes a similar method for the detection of fungi which grows in moist areas of a structure, to which many people are allergic.

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